

4.2.1 Analysis Settings

Analysis settings are global to a Trace Display. Some settings are specific to only certain plot types, others are general to the overall analysis capability. The Analysis settings provide general analysis window and data accumulation control. Frequency settings and year weights can be applied to probabilistic analysis plotting.

4.2.1.1 Accumulation Settings

The Accumulation Settings region of the interface controls the time series analysis over the entire trace ensemble. These settings can be found in the lower portion of the display in Figure 4.2-1. The initial settings are controlled first by user defaults, as defined in an *.espadprc* file and next by the session application settings defined in the preferences section of the ESPTrace Manager. Initially, user settings will be read in as session defaults. The user may subsequently modify session settings without saving them as user default settings. The modified settings will apply to the current session of ESPADP only.

Options

The following options can be controlled in the Analysis Settings section of the Trace Display:

Display Window - This option provides the begin and end dates, in Gregorian time for the analysis time series. The user must type in valid month, day and year values in the appropriate fields. The year inputs correspond to the forecast period. To assist the user, the ESPTrace forecast begin and end dates are provided as bounding information. This allows the user to shorten the analysis window.

Daily Accum - The user can select **None**, **Inst Daily (instantaneous daily)**, **Mean Dially**, or **Total Dially** as the options for this setting. A setting of **None** will result in calculations being performed over instantaneous time series and intervals. A setting of **Inst Daily (instantaneous daily)**, **Mean Dially**, or **Total Dially** will first perform its calculations prior to any additional accumulations.

Mean Daily - The user can turn the *Mean Daily* **On** or **Off** as the options for this setting. A setting of **Off** will result in calculations being performed over instantaneous time series and intervals. A setting of **On** first performs a mean daily calculation prior to any additional accumulations.

Interval - This option provides the time interval over which the analysis will be calculated. By default, the interval is set to *TSInterval* which corresponds to the actual time interval the original data is stored in. For ESP traces, *TSInterval* typically corresponds to 6-hour or 24-hour intervals. Choices for the interval include *TSInterval*, *Daily*, *Weekly*, *Monthly*, or *Window*.

A multiplier field is provided to allow the user to select multiples of intervals for the calculation interval. Intervals are calculated by the base interval and the multiplier, beginning on the Display Window Begin Date. The window interval calculates a single interval over the entire begin date to end date period. A weekly interval with a multiplier of 2, a begin date of 12/10/1996 and an end date of 3/10/1997 would calculate an accumulation of the analysis variable over 6 intervals beginning 12/10/1996 and ending 3/3/1997. Each interval would be 14 days long. A complete interval is needed to result in an analysis point for that interval. This is why the last period of the above example ends on 3/3/1997. The end date of 3/10/97 does not allow 14 complete days of analysis over the interval beginning 3/4/1997.

Output Variable - The Output Variable controls the actual data accumulation. Possible options include:

- o Max: Maximum value over the interval
- o Min: Minimum value over the interval
- o Mean: Mean value over the interval
- o Sum: Sum of the values over the interval
- o NDTO: number of days to an occurrence of a threshold value during the interval
- o NDIS: number of days in an interval which are above or below a threshold value
- o NDMX: number of days to the maximum value in an interval
- o NDMN: number of days to the minimum value in an interval

NDTO and NDIS accumulations require two additional pieces of information. A threshold value is required for comparisons and a flag whether to look above or below the threshold value.

User Notes

The number of days returned to a given value or the number of days in an interval below or above the threshold value are bounded by zero and the number of days in an interval minus 1. The maximum value occurring the first day of an interval would return zero if calculating NDMX. Additionally, if a threshold value is never reached during an interval, a value corresponding to the number of days in the interval is returned.

Apply must be selected to implement any user modification to accumulation settings.

4.2.1.2 Frequency Settings

The frequency settings are used to control the probabilistic aspects of the analysis and display of time series traces. These settings only have an effect on exceedance probability displays and probability interval histogram displays. The settings portion of the display can be accessed by toggling a button in the lower right corner of the display. Figure 4.2-2 highlights the available frequency settings. The *Frequency Settings* button will toggle to these settings.

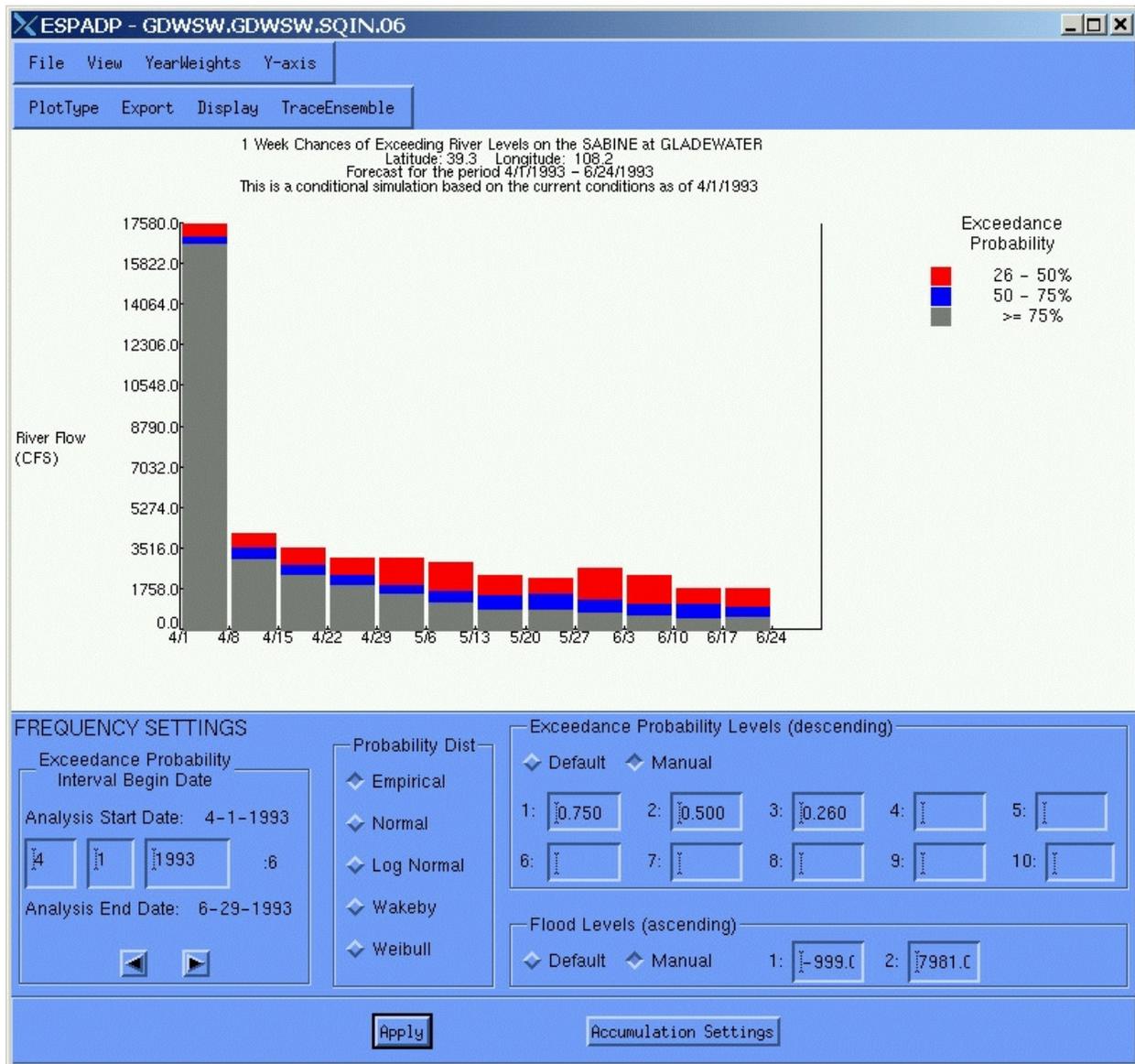


Figure 4.2-2. Trace Display Frequency Settings

Options

The frequency settings that may be controlled are as follows:

Exceedance Probability Interval Begin Date - This setting applies to the exceedance probability plot that displays the results of a frequency analysis of an output variable for a single interval. Since the accumulation settings allow output variables to be computed for a number of intervals between the begin and end dates, the desired interval for display in the exceedance probability plot must be specified. By default, a frequency analysis of the first interval is displayed on the plot.

Any date that falls within a given interval may be specified to select that interval. Alternatively, the forward and backward arrows below the dates may be used to increment or decrement the date by one interval.

Probability Distribution - The frequency analysis may be performed using one of five mutually exclusive probability distributions. These are an Empirical distribution based on the Wiebull plotting position, a Normal distribution, a Log Normal distribution, a Wakeby distribution and a Weibull distribution. Any one of these may be selected from within the probability distribution box.

Exceedance Probability Levels - The Probability Interval Histogram displays and some of the tabular displays allow the user to select probability levels for which frequency information should be provided. Up to 10 exceedance probability levels may be specified. The values given will be sorted by the program for display purposes.

Flood Levels - The Flood Exceedance Probability display allows the user to select two stage or flow levels, where the first one is the Caution value and the second one is the Flood value.

User Notes

The *Apply* button is used to recompute and regenerate the display using the current settings. No changes to the frequency analysis settings will take effect until the *Apply* button is pressed. The *Accumulation Settings* button may be pressed to toggle the analysis options from frequency to accumulation settings.